

Please amend Claims 1, 10-11, 19-24, 26-35, 37-41, 47, 49, 51, 54 and 55 as follows:

1. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide, on a weight basis relative to said LPS, said peptide comprising:

(a)  $(A)_n$  wherein A is Lysine or Arginine and n is an integer with a minimum value of 7;

(b)  $(AB)_m$  wherein A is Lysine or Arginine and B is a hydrophobic amino acid selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; m is an integer with a minimum value of 3; and (c)  $(ABC)_p$  wherein A is a cationic amino acid which is Lysine or Arginine; B and C are hydrophobic amino acids which may be the same or different and are selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; p is an integer with a minimum value of 2.

10. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide, on a weight basis relative to said LPS wherein the peptide comprises:

$(\text{Lys-Phe})_5$  (SEQ ID NO: 5).

11. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Lys-Phe-Leu-Lys-Lys-Thr-Leu (SEQ ID NO: 6).

12. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a

peptide on a weight basis relative to said LPS wherein the peptide comprises:

(Lys-Phe-Leu)<sub>2</sub>-Lys (SEQ ID NO: 7)

13. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

(Lys-Phe-Leu)<sub>3</sub>-Lys (SEQ ID NO: 8)

14. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

(Arg-Tyr-Val)<sub>3</sub> (SEQ ID NO: 9)

15. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

(Lys-Phe-Phe)<sub>3</sub>-Lys (SEQ ID NO: 10)

16. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

(Lys-Leu-Leu)<sub>3</sub> (SEQ ID NO: 11)

17. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

13  
(Lys)<sub>6</sub>(Phe-Lys)<sub>2</sub> (SEQ ID NO: 12)

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19. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Cys-Lys-Phe-Lys-Lys-Cys

s-----s (SEQ ID NO: 14)

20. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

14  
Lys-Phe-Lys-Cys-Lys-Phe-Lys-Phe-Lys-Cys

s-----s (SEQ ID NO: 15)

21. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Lys-Leu-Lys-Cys-Lys-Leu-Lys-Leu-Lys-Cys

s-----s (SEQ ID NO: 16)

22. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Arg-Thr-Arg-Cys-Arg-Phe-Lys-Arg-Arg-Cys

s-----s (SEQ ID NO: 17)

23. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS

free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Lys-Cys-(Lys-Phe-Lys)<sub>2</sub>-Cys-Lys  
s-----s (SEQ ID NO: 18)

24. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Cys-(Lys)<sub>4</sub>-(Phe)<sub>4</sub>-Cys  
s-----s (SEQ ID NO: 19).

26. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Val-Lys-Ala-Leu-Arg-Val-Arg-Arg-Leu (SEQ ID NO: 21).

27. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Lys-Ser-Leu-Ser-Leu-Lys-Arg-Leu-Thr-Tyr-Arg (SEQ ID NO:22).

28. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Lys-Val-Arg-Lys-Ser-Phe-Phe-Lys-Val (SEQ ID NO: 23).

29. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS

free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide comprises:

Phe-Leu-Lys-Pro-Gly-Lys-Val-Lys-Val (SEQ ID NO: 24).

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30. (twice amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Lys-Glu-Leu-Lys-Arg-Ile-Lys-Ile (SEQ ID No: 25)

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31. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Lys-Trp-Lys-Ala-Gln-Lys-Arg-Phe-Leu (SEQ ID NO: 26)

32. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Lys-Trp-Lys-Ala-Gln-Lys-Arg-Phe-Leu-Lys (SEQ ID NO: 27)

33. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Lys-Arg-Leu-Lys-Trp-Lys-Tyr-Lys-Gly-Lys-Phe (SEQ ID NO: 28)

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34. (twice amended) A vaccine for preventing-gram negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a

peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

C<sup>8</sup> Lys-Thr-Lys-Cys-Lys-Phe-Leu-Lys-Lys-Cys (SEQ ID NO: 31)

S - - - - - S.

C<sup>9</sup> 35. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Cys-Lys-Phe-Leu-Lys-Lys-Cys

S-----S (Seq ID NO: 30).

37. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

R B  
Lys-Phe-Leu-Lys-Lys-Thr (SEQ ID NO: 32).

C<sup>10</sup> 38. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Cys-Lys-Lys-Leu-Phe-Lys-Cys-Lys-Thr-Lys  
S - - - - - S (SEQ ID NO: 33).

39. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Cys-Lys-Lys-Leu-Phe-Lys-Cys-Lys-Thr  
S - - - - - S (SEQ ID NO: 34).

40. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

C10  
Ile-Lys-Thr-Lys-Cys-Lys-Phe-Leu-Lys-Lys-Cys  
s - - - - - s (SEQ ID NO: 35).

41. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Ile-Lys-Thr-Lys-Lys-Phe-Leu-Lys-Lys-Thr (SEQ ID NO: 36).

C11  
47. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

(Lys)<sub>6</sub>Phe-Leu-Phe-Leu (SEQ ID NO: 42).

C12  
49. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS wherein the peptide is of the formula:

Lys-Trp-Lys-Ala-Gln-Lys-Arg-Phe-Leu-Lys (SEQ ID NO: 44).

C13  
51. (twice amended) A method for the preparation of a vaccine for prevention of gram-negative infections, said method comprising combining LPS with a stoichiometric excess of a peptide on a weight basis relative to said LPS comprising:  
(a) (A)<sub>n</sub> wherein A is Lysine or Arginine and n is an integer with a minimum value of 7;

C13  
(b)  $(AB)_m$  wherein A is Lysine or Arginine and B is a hydrophobic amino acid selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; m is an integer with a minimum value of 3; and  
(c)  $(ABC)_p$  wherein A is a cationic amino acid which is Lysine or Arginine; B and C are hydrophobic amino acids which may be the same or different and are selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; p is an integer with a minimum value of 2.

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54. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS free or in conjugate form with a stoichiometric excess of peptide:LPS where there is an excess of from 2 to 5000 times by weight of peptide, said peptide comprising:

C14  
(a)  $(A)_n$  wherein A is Lysine or Arginine and n is an integer with a minimum value of 7;

(b)  $(AB)_m$  wherein A is Lysine or Arginine and B is a hydrophobic amino acid selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; m is an integer with a minimum value of 3; and (c)  $(ABC)_p$  wherein A is a cationic amino acid which is Lysine or Arginine; B and C are hydrophobic amino acids which may be the same or different and are selected from the group consisting of Valine, Leucine, Isoleucine, Tyrosine, Phenylalanine and Tryptophan; p is an integer with a minimum value of 2.

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Sub D6  
C15  
55. (amended) A vaccine for preventing gram-negative infections which comprises a complex obtained by combining LPS in a free form or in conjugate form with a stoichiometric excess of a peptide on a weight basis relative to said LPS of the formula:

Cys-(Lys)<sub>5</sub>-Cys  
s-----s ( SEQ ID NO: 13)

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Kindly add the following claims: